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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/527,579	03/16/2000	Yoel Fink	MIT8412	2288

7590

06/17/2003

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EXAMINER

BHAT, NINA NMN

ART UNIT

PAPER NUMBER

1761

DATE MAILED: 06/17/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/527,579

Applicant(s)

FINK ET AL.

Examiner

N. Bhat

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 02 June 2003.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-25 is/are pending in the application.
- 4a) Of the above claim(s) 17-20 and 22-25 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-16 and 21 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☒ Claim(s) 1-25 are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 5.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

### DETAILED ACTION

1. Applicant's election without traverse of Group I Claims 1-16 and 21 drawn to a biocompatible photonic crystal in Paper No. 8 is acknowledged. Because applicant has not argued the restriction requirement, the requirement is still deemed proper and is therefore made FINAL.

2. Action on the merits of claims 1-16 and 21 follows:

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) and the Intellectual Property and High Technology Technical Amendments Act of 2002 do not apply when the reference is a U.S. patent resulting directly or indirectly from an international application filed before November 29, 2000. Therefore, the prior art date of the reference is determined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

4. Claims 1-16 are rejected under 35 U.S.C. 102(e) as being anticipated by Nanomaterials Research Corporation [WO 98/56854].

Nanomaterials Research Corporation teach a nanocomposite structure comprising a nanostructured filler carrier intimately mixed with a matrix and method of making a the nanocomposite. The nanocomposite reads directly on a biocompatible photonic crystal which comprises layers of dielectric material with alternating layers of polymethylmethacrylate, polyvinyl alcohol, polycarbonate, etc. and metal oxide specifically titanium dioxide layers.[Note Page 2, lines 14-24 and Page 5, lines 26 et seq.] Specifically, Nanomaterials Research Corporation teach on Page 9, lines 8 et seq. that nanostructured fillers in either coated and uncoated form and nano filled composites have value in biomedical applications for both humans animals. The small size of the nanostructured filler can be readily transportable through pores and capillaries, and can be used in developing novel time-release drugs and method of administration and delivery of drugs, markers and medical materials. A polymeric coating can be utilized either to make water insoluble fillers into a form that is water-soluble or make water-soluble fillers into a form that is water-soluble. The nanoparticulate filler of biomedical operations might be a carrier or support of a drug of interest, participate in the drug's functioning or might even be the drug itself. Possible administration routes include oral, topical and injection routes. Because of oral administration of the nanocomposite material, it is inherent in the Nanomaterials Research Corporation further teach that the nanostructured composite has desired material properties selected from the group consisting of refractive index, transparency to light, reflection characteristics, resistivity, permittivity, permeability, coercivity, B-H product, band gap, etc. [Note Page 2, lines 3-13] Nanomaterials Research Corporation

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further teach that nanostructured filled may be used to produce composites with refractive index engineered for a particular application. Gradient lenses may be produced using nanostructured material. The use of nanostructured fillers can be used to help filter specific wavelengths and a key advantage of nanostructured fillers in optical applications is expected to be in their enhanced transparencies because of the domain size of the nanostructured fillers range from about the same as to more than an order of magnitude less than visible wavelengths of light. The nanocomposite structure as taught and described by Nanomaterials Research Corporation fully anticipates applicant's claims.

5. Claims 1 is rejected under 35 U.S.C. 102(e) as being anticipated by Braun et al.

Braun et al. teach an electrochemical process of fabricating a photonic band gap material by providing a template comprising a colloidal crystal, placing the template in an electrolytic and electrochemically forming a lattice material having high refractive index material on the colloidal crystal and removing the colloidal crystal. The ordered structure which is then provided can be used as optical filters, optical switches, waveguides, routers, laser cavities and can be used in biocompatible material thus anticipating applicant's claim.

6. Claim 21 is free of the prior art. Applicant should draft the claim which includes a candy and the photonic crystal and the structural relationship of the candy and photonic material, so that the candy would not read on an encapsulated photonic or nanocomposite material as described in Nanomaterials Research Corporation which has been coated or encased or enrobed by a polymeric coating. In the food art, the

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term candy is a recognized term of the art and it would be beneficial if the photonic crystal and candy structural relationship were claimed in claim 21 for clarity purposes.

7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Patel et al. teach a process for fabricating photonic band gap materials. Sun et al. teach a method of making pharmaceutical using an electrostatic chuck. West et al. teach optically active nanoparticles for use in therapeutic and diagnostic methods. Oldenburg et al. teach metal nanoshells.

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to N. Bhat whose telephone number is 703-308-3879. The examiner can normally be reached on Monday-Friday, 9:30AM-6:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Milton Cano can be reached on 703-308-3959. The fax phone numbers for the organization where this application or proceeding is assigned are 703-872-9310 for regular communications and 703-872-9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-306-5665.



N. Bhat  
Primary Examiner  
Art Unit 1761

June 12, 2003